2015 SOURCE TEST PROTOCOL
COMPLIANCE TESTS AND RELATIVE ACCURACY AUDITS
TWO NATURAL GAS FUELED GE LM6000 PEAKING TURBINES
GWF ENERGY LLC
HENRIETTA PEAKER PROJECT (HPP)

Prepared for:

GWF Energy LLC.
14950 West Schulte Road
Tracy, California 95377

Source Test Location:

Henrietta Peaker Project
25th Avenue
Lemoore, California 93245

For Submittal To:

San Joaquin Valley Air Pollution Control District Central Region
1990 E. Gettysburg Ave
Fresno, CA 93726

Proposed Test Date:

June 23-25, 2015

Publication Date:

May 8, 2015

Prepared by:

TRC
10680 White Rock Road
Rancho Cordova, CA 95670

Protocol Number: RCD-2015-107P
Project Number: 217877.2015.HPP0

GENERAL INFORMATION

Permit Issued to:	GWF Energy LLC Henrietta Peaker Project
Equipment Location:	25th Avenue Lemoore, California 93245
Facility Contact:	Neftali Nevarez Environmental Health and Safety Manager Star West Generation LLC 14950 West Schulte Rd. Tracy, CA 95377 (925) 597-2905
Source Description(s):	Two 47.5 MW GE Model LM6000 simple cycle peaking turbines
Permit(s) to Operate:	C-3929-1-4 and C-3929-2-4
Regulatory Agencies:	San Joaquin Valley Air Pollution Control District John Copp 1990 E. Gettysburg Ave Fresno, CA 93726 (559) 230-6000 U.S. Environmental Protection Agency, Region IX 75 Hawthorne Street San Francisco, CA 9410
Source Test Contractor:	TRC 10680 White Rock Road Rancho Cordova, CA 95670
Contact:	Mr. Michael J. Miller, QI (916) 224-4638
Proposed Test Dates:	June 23-25, 2015

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1.0 Introduction

1.1 Summary of Test Program

TRC Environmental Corporation (TRC) has been contracted by GWF Energy LLC (GWF) to perform a series of air emission tests and relative accuracy test audits (RATA) at the Henrietta Peaker Project (HPP) facility located in Lemoore, California. The tests are to be conducted at the inlet and outlets of two 47.5 MW GE Model LM6000 simple cycle peaking turbines. The tests are to be performed to meet the source testing requirements of the San Joaquin Valley Air Pollution Control District (SJVAPCD) permits to operate. Additional tests will be performed to audit the performance of the continuous emission monitoring systems (CEMS) in accordance with 40 CFR, Part 60, Appendix B and 40 CFR, Part 75. TRC will collect data as outlined in Table 1

Table 1.1: Emission Test Parameters

Parameter	Units Measurement
Outlet Pollutant Species for Compliance:	
Carbon monoxide (CO)	ppmvd, ppmvd @ 15% O_2, lb/hr, lb/day
Nitrogen oxides (NO_X as NO_2)	ppmvd, ppmvd @ 15% O_2, lb/hr, lb/day, lb/MMBtu
Volatile organic compounds (VOC as CH_4)	ppmvd, ppmvd @ 15% O_2, lb/hr, lb/day
Ammonia (NH_3)	ppmvd, ppmvd @ 15% O_2
Total particulate matter (TPM as PM_{10})	gr/dscf, lb/hr, lb/day
Particulate matter (Filterable)	gr/dscf
Sulfur oxides (SO_X as SO_2)	lb/hr, lb/day
Outlet Diluent Gaseous Species:	
Oxygen (O_2)	% volume dry
Carbon dioxide (CO_2)	% volume dry
Outlet 40CFR60 and 40CFR75 Relative Accuracy Test Audits:	
Oxygen (O_2)	% volume dry
Carbon monoxide (CO)	ppmvd, ppmvd @ 15% O_2, lb/hr
Nitrogen oxides (NO_X as NO_2)	ppmvd, ppmvd @ 15% O_2, lb/hr, lb/MMBtu, bias adjustment factor
Inlet CEMS Relative Accuracy Test Audits for SJVAPCD NH_3 Emissions Calculations:	
Oxygen (O_2)	% volume dry
Nitrogen oxides (NO_X as NO_2)	ppmvd, ppm @ 15% O_2
Process Conditions:	
Volumetric flow rate	dscfm
Moisture content	% volume
Stack temperature	°F
Process Data:	
Unit fuel flow rate	kscfh
40 CFR 75 Unit load	Mw
Fuel factor and higher heating value	Fd and HHV
CEMS and CERMS data for RATA	Various
Fuel Sample:	
Sulfur content	gr/100scf
Fuel factor and higher heating value	Fd and HHV

Note: The parameters and units of measurement presented in this table represent the minimum amount of data to be collected to meet the requirements of this test program. Additional data may be collected concurrently with this test program that is outside of the scope of this protocol for plant information and/or additional plant emission reporting purposes. This additional data may be included in the final report for ease of reporting.

1.2 Test Program Schedule

The field testing is scheduled to be conducted over two field test days beginning June 25, 2015. Test hours of approximately 8:00 am to 6:00 pm are expected. A complete test schedule, including number of runs and sample durations, is presented in Table 1.2.

Table 1.2: Field Test Schedule

Scheduled Day	Description	Test Run	Duration
Day 1: Monday June 24, 2015	Test team travel to site, setup, safety training	--	--
Day 2: Tuesday June 25, 2015 1st day of testing Test team onsite 7:00 am Start testing 8:00 am	**HPP Unit 1** TPM as PM_{10} VOC, NH_3 Inlet - NO_X, O_2 (RATA only) Outlet - NO_X, CO, O_2 (RATA and Comp)	-- 1, 2, 3 of 3 1, 2, 3 of 3 1-9 (up to 12) 1-9 (up to 12)	-- 120 min. ea. 30 min. ea. 30 min. ea. 30 min. ea.
Day 3: Wednesday June 26, 2015	Set up on Unit 2	--	--
Day 4: Thursday June 27, 2015 last day of testing Test team onsite 7:00 am Start testing 8:00 am	**HPP Unit 2** TPM as PM_{10} VOC, NH_3 Inlet - NO_X, O_2 (RATA only) Outlet - NO_X, CO, O_2 (RATA and Comp) SO_2 by fuel sample	 1, 2, 3 of 3 1, 2, 3 of 3 1-9 (up to 12) 1-9 (up to 12) 1, 2, 3 of 3	-- 120 min. ea. 30 min. ea. 30 min. ea. 30 min. ea. grab
Day 5: Friday June 28, 2015	No testing	--	--

Note: Order of units may be changed to accommodate plant scheduling. Some test runs on will be performed concurrently with the other tests for the same unit as the data is shared for each method.

1.3 Test Program Organization

The test program is to be conducted by TRC. TRC will provide the test personnel and all necessary equipment to measure emissions as outlined in this protocol. Portions of the sample analyses will be subcontracted to qualified analytical laboratories. An outline of the laboratories that are planned to be subcontracted to is presented in Table 4.2.

Michael Miller, QI is assigned as TRC's project manager for this testing program. His responsibilities include overseeing the execution and planning of all air sampling efforts including reporting and project coordination. He is to ensure that the results generated by this test program meet the expectations and requirements of the facility and the regulatory administrator.

Neftali Nevarez is the designated facility contact for GWF and is responsible for the overall coordination and scheduling of this test program. Additional facility personnel will provide unit operational support as necessary.

The contact information for this project is presented in the "General Information" section on page i.

TRC is a recognized independent contractor that has been approved to conduct emission source testing on behalf of the California Air Resources Board (CARB), pursuant to Section 91200-21220, Title 17, of the California Code of Regulations. TRC has been granted full accreditation as an AETB pursuant to ASTM D7036-04.

2.0 Facility and Source Description

2.1 Facility Description

The Henrietta Peaker Project (HPP) facility is located at 25th Avenue in Lemoore, California. The facility includes two peaking 47.5 megawatt General Electric Model LM6000 Sprint natural gas-fired turbines. The units incorporate water spray premixed combustion and are equipped with an oxidation catalyst and selective catalytic reduction (SCR) systems. A CISCO dry extractive continuous emissions monitoring system (CEMS) is installed to measure emissions of O_2, CO and NO_X at the exhaust and measure O_2 and NO_X at the SCR inlet. The emissions monitoring system also serve as continuous emission rate monitoring systems (CERMS) for reporting mass emission rates. The facility calculates ammonia emissions using the SJVAPCD NH_3 slip formula specified in the permit.

2.2 Sampling Locations

Emissions from each unit outlet exhaust through a vertical, cylindrical stack that measure 120 inches inside diameter. There are four sampling ports on each stack. Each port is located 90 degrees from each other in the same plane. The ports are located approximately 288 (2.4 diameters) inches downstream and 60 inches (0.5 diameters) upstream from flow disturbances. Access to the outlet sampling location is by ladder to a permanent testing platform approximately 85 feet above ground level.

The SCR of each unit are equipped with a CEMS that sample at a height of 98" above ground level, 12" downstream of the SCR inlet, and 8.5" above duct centerline. There are 4" sample ports, equipped with ball valves, directly across from the SCR CEMS that will be utilized for performing the RATA on the inlet analyzers.

Sample points will be located according to USEPA Method 1, USEPA Method 5, USEPA Method 7E, or USEPA Performance Specification 2. All duct measurements will be verified onsite prior to testing. A diagram of the sample locations and traverse points will be presented in the source test report.

2.3 Facility CEMS/CERMS and DAHS Description

The exhaust of each engine is equipped with a dry extractive continuous emissions monitoring system (CEMS) to measure O_2, CO and NO_X. All flue gas pollutant and diluent measurements are made on a dry basis. Effluent gas from the sampling location is filtered and transported through a heated sample line to the sample conditioning system in the main analyzer cabinet. The sample conditioning system again filters the effluent gas and a chilled condenser removes the moisture. The dry, particulate-free effluent gas is then routed to the analyzers. The analog

outputs of the analyzers and certain plant inputs are transmitted to a system controller. A list of the analyzers is presented in Table 2.1. This list will be verified for inclusion in the final report.

A central control system (CCS) installed by Custom Instrumentation Services Corporation controls the CEMS and provides timing and control of the sampling system, receives analog inputs from the exhaust analyzers, and data from the turbine supervisory control system (SCS). The data provided to the SCS via the PLC includes fuel flow rate, ammonia injection flow rate, and measured SCR Inlet NO_X @ 15% O_2, and provides calculation corrected analog outputs. Automatic zero and span calibrations are performed on the CEMS monitors every twenty four hours. Certified USEPA Protocol calibration gases are injected at a valve box behind the probe.

The CEMS data acquisition and reporting system is controlled by the data acquisition and handling system (DAHS). The DAHS is a PC-based, multi-user, multi-tasking system. The DAHS provides automated data monitoring and management capabilities to the CEMS using the CeDAR® software. The DAHS is utilized for operator interface, data storage, report generation, and data display. The system generates one minute averages, from which other average values are then calculated. All data is then reduced to averages to comply with comply with 40 CFR, Part 75.10 (d1). The DAHS is configured to indicate any occurrence of specification limit exceedances or CEM operational problems and will generate reports in the required format for submittal to the applicable regulatory agencies. These reports can be produced in either hard copy or electronic format.

Table 2.1: CEMS Inventory

Unit	Parameter	Manufacturer and Model	Serial #	Span
1 & 2	O_2	To be verified	To be verified	25 %vd
	NO_X	To be verified	To be verified	20 & 200 ppmvd
	CO	To be verified	To be verified	20 & 100 ppmvd
	O_2 (Inlet)	To be verified	To be verified	25 %vd
	NO_X (Inlet)	To be verified	To be verified	60 ppmvd

3.0 Test Program

3.1 Test Objectives

The objective of the program is to perform a source test and relative accuracy test audit (RATA) as required by the permits to operate issued by the SJVAPCD, 40 CFR Part 60, and 40 CFR Part 75. The source test report will present the results of the tests and will compare them to the applicable emission limits and data collected from each unit's CEMS/CERMS DAHS. The results will be presented in units consistent with those listed in the permits.

The emissions limits and relative accuracy standards that will used to determine compliance are presented in Tables 3.1, 3.2 and 3.3.

Table 3.1: Emission Limits

Parameter	Emission Limit	Permit Condition
NO_X	3.6 ppmvd @ 15% O_2 6.21 lb/hr as NO_2 150.5 lb/day as NO_2	18 18 19
CO	6.0 ppmvd @ 15% O_2 6.25 lb/hr 151.5 lb/day	18 18 19
VOC	2.0 ppmvd @ 15% O_2 1.17 lb/hr as CH_4 28.1 lb/day as CH_4	18 18 19
PM_{10}	0.1 gr/dscf (filterable only) 2.0 lb/hr 48 lb/day	11 18 19
NH_3	10 ppmvd @ 15% O_2	22
SO_X as SO_2	0.25 gr/100scf (Fuel) 0.0015%v @ 15% O_2 0.33 lb/hr as SO_2 7.9 lb/day as SO_2	13 12 18 19

Table 3.2: Outlet Relative Accuracy Test Audit Limits

Parameter	Relative Accuracy Limit	Applicable Regulation
O_2, %vd	1.0% absolute difference	40 CFR 60 App B PS 3
O_2, %vd	1.0% absolute difference (biannual RATA)	40 CFR 75 App A 3.3.3
O_2, %vd	0.7% (incentive) absolute difference (annual RATA)	40 CFR 75 App B 2.3.1.2(h)
O_2, %vd	10% of reference method (biannual RATA)	40 CFR 75 App A 3.3.3
O_2, %vd	7.5% (incentive) of reference method (annual RATA)	40 CFR 75 App B 2.3.1.2(a)
CO, ppmvd	Only included for reference (No limit)	--
CO, ppmvd @ 15% O_2	5% of applicable standard or 10% of reference method	40 CFR 60 App PS 4A
CO, ppmvd @ 15% O_2	Absolute difference + $CC_{2.5\%}$ < 5ppmv	40 CFR 60 App PS 4A
CO, lb/hr	Absolute difference + $CC_{2.5\%}$ < 5ppmv lb/hr equiv.	40 CFR 60 App PS 4A extrapolation
CO, lb/hr	10% of applicable standard or 20% of reference method	40 CFR 60 App PS 6
CO alt. procedure	If emissions < 10% applicable standard, CGA instead of RA	40 CFR 60 App PS 4A
NO_X, ppmvd	Only included for reference (No limit)	--
NO_X, ppmvd @ 15% O_2	10% of applicable standard or 20% of reference method	40 CFR 60 App B PS 2
NO_X, lb/hr as NO_2	10% of applicable standard or 20% of reference method	40 CFR 60 App B PS 2
NO_X, lb/MMBtu as NO_2	10% of applicable standard or 20% of reference method	40 CFR 60 App B PS 6
NO_X, lb/MMBtu as NO_2	10% of reference method (biannual RATA)	40 CFR 75 App A 3.3.3
NO_X, lb/MMBtu as NO_2	7.5% (incentive) of reference method (annual RATA)	40 CFR 75 App B 2.3.1.2(f)
NO_X, lb/MMBtu as NO_2	±0.020 lb/MMBtu of reference method (biannual RATA)	40 CFR 75 App A 3.3.3
NO_X, lb/MMBtu as NO_2	±0.015 lb/MMBtu (incentive) of reference method (annual RATA)	40 CFR 75 App B 2.3.1.2(f)
NO_X, lb/MMBtu as NO_2	Calculate bias adjustment factor	40 CFR 75 App A 6.5(g)

Table 3.3: Inlet Relative Accuracy Test Audit Limits

Parameter	Relative Accuracy Limit	Applicable Regulation
O_2, %vd	1.0% absolute difference	40 CFR 60 App B PS 3
NO_X, ppmvd	10% of applicable standard or 20% of reference method	40 CFR 60 App B PS 2
NO_X, ppmvd @ 15% O_2	10% of applicable standard or 20% of reference method	40 CFR 60 App B PS 2

3.2 Test Conditions

The units will be operated at "> 50% operating capacity" during any 40 CFR 60 RATA testing, "at the load level (or operating level) designated as normal under (40 CFR 75) section 6.5.2.1(d) of appendix A" during any 40 CFR 75 RATA testing, and in "as found" condition for compliance testing as defined by SJVAPCD. Since both units are peaking units and also operate primarily at maximum operating capacity during normal operations, compliance and RATA testing will be performed concurrently and at the "maximum sustainable load" as defined in 40 CFR 75 App A 6.5.2.1(a)(1). Various process data will be collected and used to determine test conditions. This data will be presented in the source test report.

4.0 Sampling and Analytical Procedures

4.1 Test Methods

The purpose of this section is to summarize the test methods as they will be used. The descriptions of the test methods here contain only major elements of the methods. Electronic copies of the published test methods, which contain all method requirements, are available upon written request. Where any conflicts exist between the published test methods and the method descriptions here, the methods as described here in this section are to take precedence.

In the course of normal testing, it is sometimes necessary to modify a test method to meet the unique requirements of an individual source. Should any major modifications to the test methods, not described here, become necessary, a notation of the deviation will be included in the final source test report.

The number of runs and duration of tests are presented in Table 1.2. The proposed test methods for this testing program are presented in Table 4.1. A summary of the laboratory analyses matrix are presented in Table 4.2.

Table 4.1: Test Method and Detection Limit Matrix

Parameter	Sample Method	Analytical Approach	Expected Detection Limit
O_2/CO_2	USEPA 3A/20	Paramagnetism/NDIR	2.0% of span
CO	USEPA 10/20	Gas filter correlation or NDIR	2.0% of span
NO_X	USEPA 7E/20	Chemiluminescence	2.0% of span
SO_X	USEPA 19	Stoichiometry	--
NH_3	BAAQMD ST1-B	Ion selective electrode	0.1 ppm
PM (filterable)	USEPA 5	Gravimetry	0.5 mg/fraction
TPM as PM_{10}	USEPA 5/202	Gravimetry	0.5 mg/fraction
Fuel sample	ASTM D1945, D1946	Gas chromatography	--
Fuel sample	ASTM D3246	Oxidative Microcoulometry	1.5-100mg/kg
VOC	USEPA 18	Gas chromatography	0.1 ppm
Vol. flow rate	USEPA 1-4 & 19	Pitot/molwt & Stoichiometry	~0.5 ppm
			--

Note: Many things can affect a test method's detection limit. The expected detection limits are presented here for only initial reference only. Actual detection limits are determined at the time of analysis and subsequent quality control calculations and may be different from those presented here

Table 4.2: Laboratory Analysis Matrix

Parameter	Expected Hold Time	Expected Turn Around Time	Analyzing Laboratory	Laboratory Location
CEMS Measurements	--	--	TRC	Onsite
NH_3	14 days	14 days	TRC	Bakersfield, California
VOC (EPA 18/TO-12)	30 days	14 days	AAC	Bakersfield, California
Optional Onsite Analysis NH_3 VOC (USEPA 18)	N/A	At end of test day	TRC	Onsite Analysis
TPM as PM_{10}	N/A	14 days	AAC	Bakersfield, California
Natural Gas Fuel Analysis (ASTM 1945, 1946, 3588, ASTM 3246)	24 hours	14 days	Zalco Laboratories	Bakersfield, California

4.1.1 Stratification Test Procedures

Several test methods proposed here outline procedures for performing stratification tests. Many tests contain data that has been collected concurrently with other methods using shared sample equipment. Where any discrepancies between performance specifications and/or reference methods exist, as in these situations where raw data is collected from the same sample system, the more conservative of approaches (i.e. number of traverse points, definition of a stratified duct, etc.) is utilized.

4.1.2 USEPA Methods 3A, 7E, and 10 (O_2, CO_2, NO_X, and CO)

Samples are collected through a, quarts, pyrex, aluminum, stainless steel or titanium probe inserted into the stack through sample ports provided. Sample gas is delivered through a sample conditioning and delivery system comprised of an insulated, heated, 0.375" OD Teflon sample line, condenser (M & C Products equipped with two Peltier Effect cooled stainless steel condensers for moisture removal), Balston filter (for particulate removal), and a pump, all located on the testing platform at the stack. A Teflon tube, 0.375" OD is used to deliver sample from the platform down to the testing van where a manifold system is used for sample distribution to the continuous analyzers. The instrument analog outputs are 0-10 VDC or 0-1 VDC. The outputs are connected to a chart recorder and data acquisition system. A schematic of the continuous emissions sampling and monitoring system is presented in Figure 4-1.

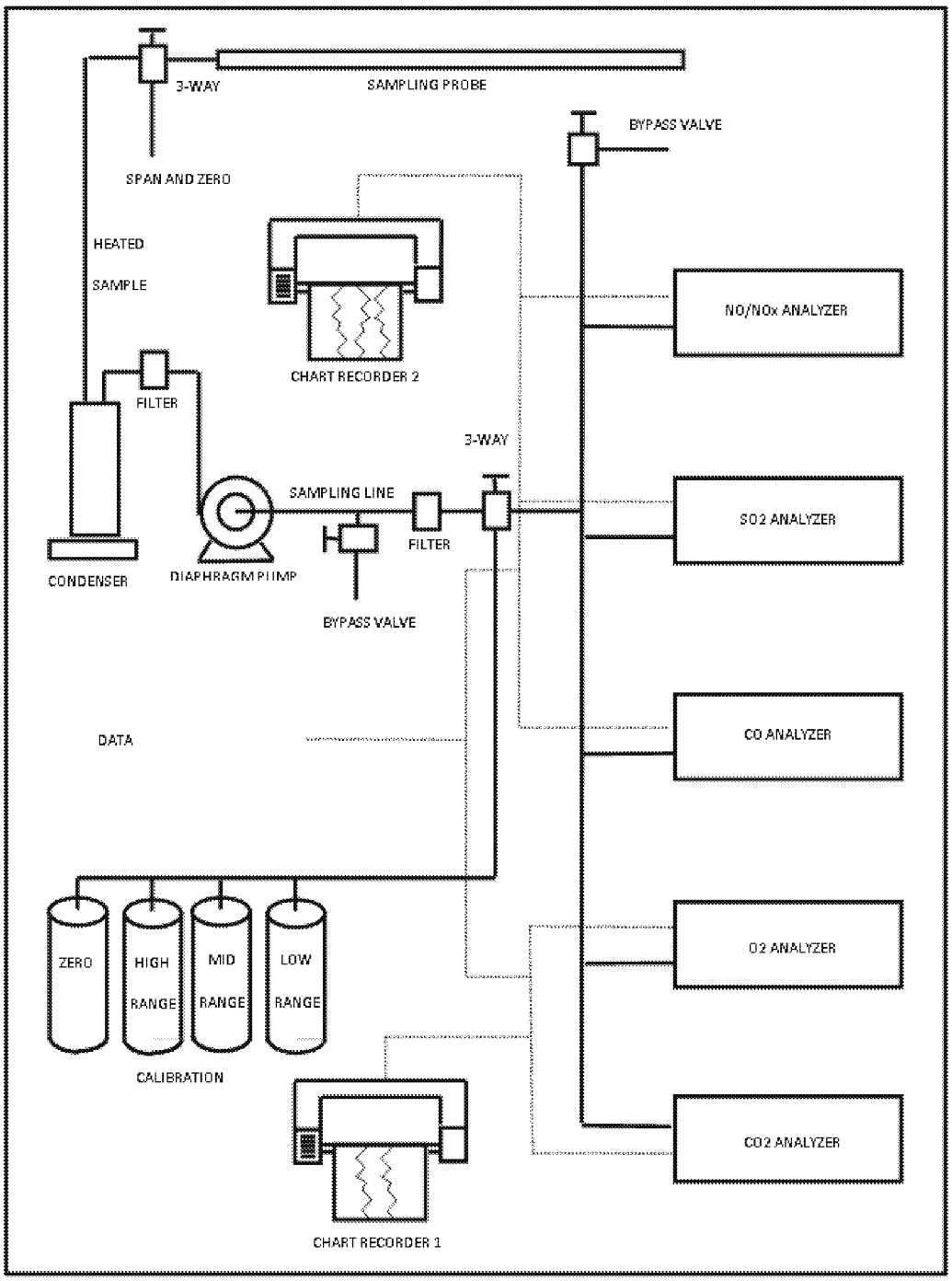
The gaseous parameters monitored through the use of continuous monitors are O_2, CO_2, NO_X, and CO. The instruments are calibrated and operated in accordance with USEPA Reference Methods and CARB Methods.

Prior to emission testing, several calibration checks are performed. Initial calibration of the sampling system, calibration error check, leak check, response check,

NO_2 convertor check, and sample bias check are each performed. Between each test run, the monitoring system is checked for zero and span drift by introducing zero and calibration gas. If the analyzer calibration drift is greater than 3% of the calibration span, or if the zero drift is greater than 3% of the calibration span, the run is repeated. At the beginning and the conclusion of each run, a sampling bias check is conducted by routing the calibration gases through the entire sample delivery system using a three-way valve installed on the probe. The sample delivery system is leak checked at the beginning and conclusion of the test day.

The analyzers are calibrated with two concentrations of span gas plus zero gas. EPA Protocol gases used for this testing program will be from vendors that are participating in the Protocol Gas Verification Program (PGVP).

Figure 4.1: TRC CEMS Schematic



4.1.3 USEPA Method 5 (Total Particulate as Particulate Matter less than 10 Microns)

The emissions of PM_{10} are measured and reported as total particulate matter (TPM) using the combined procedures and equipment specified in USEPA Methods 5 and 202 (USEPA 5, Amended February, 2000; USEPA 202, Amended December 8, 2010). The number and duration of the sample runs are presented in Table 1.2. USEPA Methods 1, 2, 3, and 4 are referenced by both USEPA 5 and USEPA 202 and are used for selecting the number of traverse points, determining the average gas velocity, gas molecular weight, and percent moisture content.

Test Description: Particulate matter is withdrawn isokinetically by a leak-free pump from the source through a sample probe, a glass fiber filter, and sample train where it is collected into two fractions of filterable and condensable particulate material. Material collected at or above the filtration temperature is determined gravimetrically after removal of uncombined water. This filterable particulate matter, also known as the front half (F½), is defined as the combined mass of particulate matter collected from the nozzle washings, the probe washings, and the material collected on the glass fiber filter. Condensable particulate matter, also known as the back half (B½), is defined as the mass of particulate collected from the moisture knock out flask, 2nd impingers, and on the condensable particulate filter (CPM). Total particulate matter is reported as the combined filterable and condensable particulate matter (F½ and B½).

Sample System Description: The sampling system consists of a nozzle, sample probe, heated filter assembly, sample line, sample train, sample pump, and a meter box that houses auxiliary equipment used to record, monitor, and control the sample system. An example of this system is presented in Figures 4.2 through 4.4. A list of components is presented in Table 4.3.

Figure 4.2: USEPA 5 Sample System Schematic

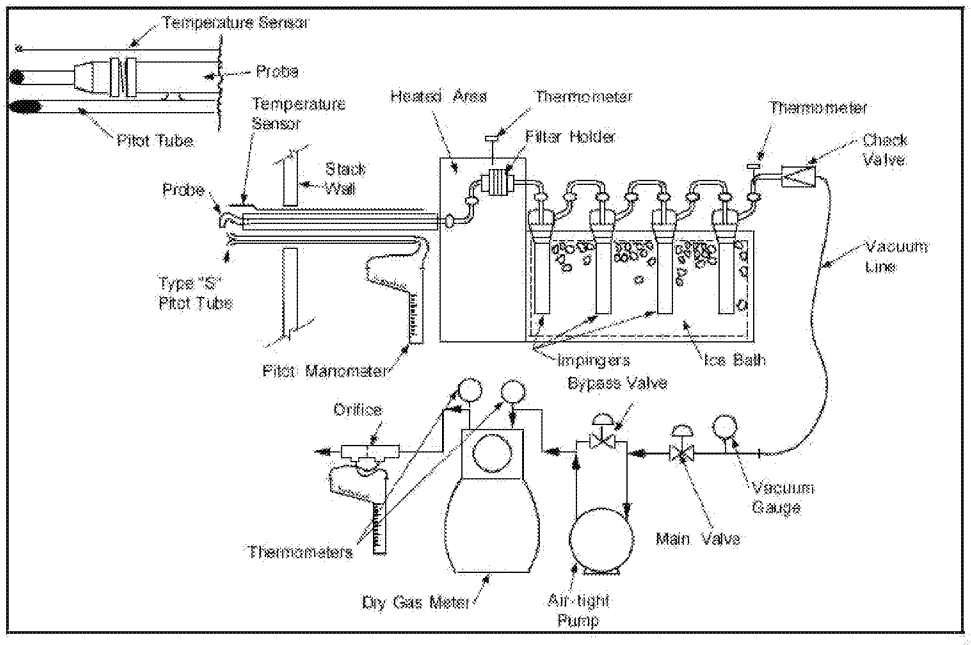


Figure 4.3: USEPA 202 Sample System Schematic

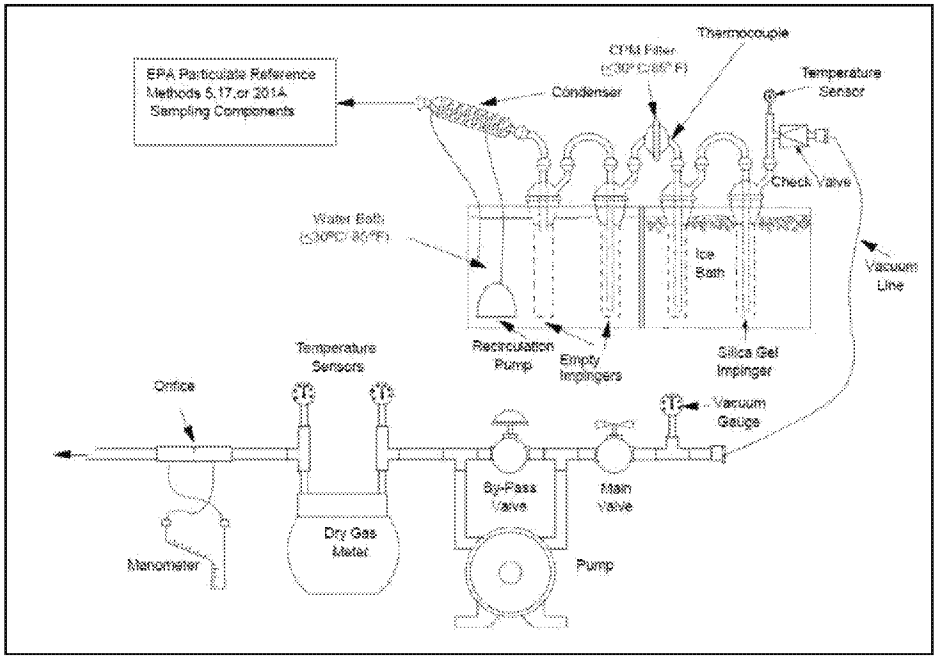


Figure 4.4: USEPA 202 N_2 Purge System Schematic

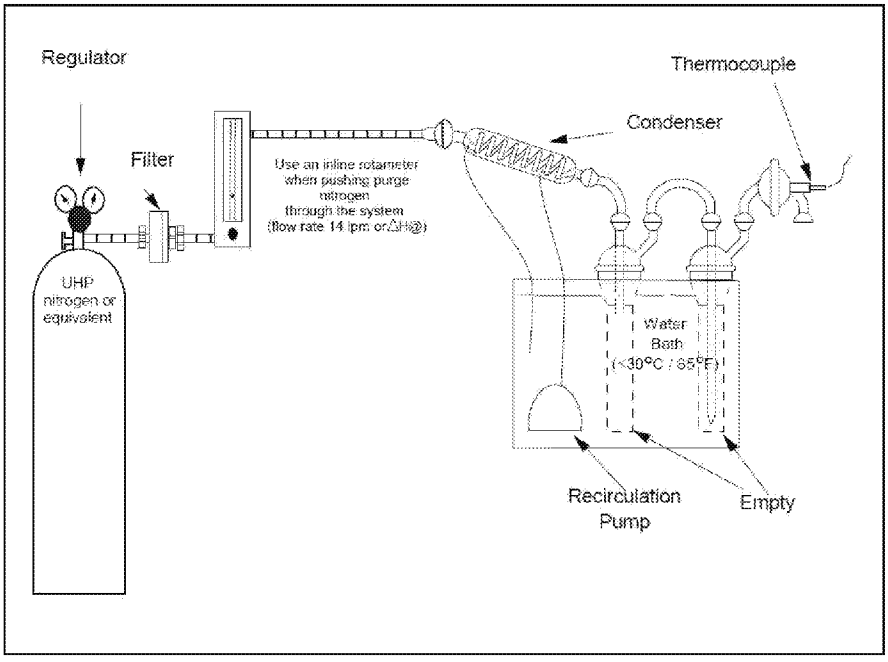


Table 4.3: USEPA 5 and USEPA 202 Sample Equipment Matrix

Item	Material	Description or Specification
Sample nozzle	Stainless steel (316), quartz, or glass	- button-hook or elbow design - ≤ 30° taper on outside to allow for a static internal diameter - uniquely marked for identification
Sample probe	Stainless steel (316) sheathing	- of sufficient effective length to traverse sample location - installed with the following: a calibrated "S" type pitot, a removable heating element, "K" type thermal couples to measure stack temperature and probe temperature, a probe sample liner
Sample probe liner	Stainless steel (316), titanium, incoloy, quartz, or glass	- ⅝" internal diameter - ≤ 900 °F (stainless steel, titanium, incoloy, glass, or quartz) - > 900 °F and ≤ 1,650 °F (quartz)
F½ filter holder	Borosilicate glass	- provides a positive seal against leakage from the outside or around the filter
Filter frit	Stainless steel (316), Teflon, or Viton	- provides support for the sample filter
Heated filter assembly (Oven box)	--	- maintains sample filter at required temperature
Sample line	Teflon	- ⅜" outside diameter - connects filter to sample train
Umbilical	--	- provides electrical power and thermal couple connections from control box to the heated filter assembly and sample probe
Sample train	Borosilicate glass	- method 23 type condenser - impinger 1 is an empty water drop out flask - impinger 2 is empty - CPM filter installed between impingers 2 & 3 - impinger 3 is charged with 100 ml of H_2O - impinger 4 is charged with indicating silica gel - impinger bucket is 2 chambered. Chamber 1 filled with H_2O maintained at ≤ 85 °F. Chamber 2 is filled with H_2O & ice to maintain impinger exit temperature at 68 °F.
Control box (Meter box)	--	- Installed with the following: a calibrated dry gas meter (DGM), probe, and oven box heat controllers, type "K" thermal couple readers to display stack, probe, impinger exit, DGM, and auxiliary temperatures, 2 incline manometers for measuring ΔH and ΔP, vacuum gauge, fine and coarse sample flow rate adjustment valves
Sample pump	--	- a leak free diaphragm or rotary spin vane pump capable of maintaining proper sample rate

Glassware Preparation, Proof Blank, Recovery Blank:

All glassware that is used to collect and analyze samples is cleaned prior to the test with soap and water, and rinsed using tap water, deionized water, acetone, and hexane. After cleaning, the glassware is baked at 572 °F for six hours prior to beginning tests at each source category sampled at a facility. As an alternative to baking glassware, a field train proof blank may be performed on the sampling train glassware that is used to collect the CPM fractions. Prior to each sampling run, the train glassware used to collect condensable PM must be rinsed thoroughly with deionized, ultra-filtered water that that contains 1 ppmw (1 mg/L) residual mass or less.

A "proof blank" is performed prior to conducting the emission test by rinsing the probe extension, condenser, each impinger and the connecting glassware, and the front half of the CPM filter housing twice with water, once with acetone, and twice with hexane into the appropriate containers.

One "recovery blank" is performed per source category between a run 1 and 2 by reloading the train as for a sample run. Then recovering as a sample into the appropriate containers.

Test Preparation:

Prior to sampling, stack and sample port dimensions are collected and traverse points are marked on the sample probe. Preliminary stack gas data (i.e. average ΔP, stack temperature, stack pressure, molecular weight, estimated moisture content) is collected and used to calculate a "K" or "X" factor used during the tests to maintain an isokinetic sample rate. Data from previous tests may be used when it is determined that test conditions are consistent with that of a previous test. Since TRC's sample systems are used on a highly frequent and regular basis, the pretest calibration check of the DGM is omitted as data from biannual calibrations and regular post calibration checks provide sufficient quality control.

200 ml reagent blanks of acetone, reagent water, and hexane are collected. A field blank of the sample probe, sample train and filter assembly are collected. The sample train and filter holder are charged, initial impinger weights are recorded, and the complete sample system is hooked up. A pretest leak check is performed at ≥ 15 inHg on the complete sample system a leakage rate ≤ 4 percent of the average expected sampling rate or 0.020 cfm, whichever is less, is considered passing. The probe and oven box are heated to the desired temperature of 248 °F ±25 °F. Initial DGM, temperature, and ΔP reading are taken and recorded on a data sheet.

Sample Procedure:

After test preparations are complete, the sample probe is inserted at the sample location and the tip placed at the first sample point. To start the run, the sample pump is turned on, the time is recorded, the coarse sample valve is opened, and the sample flow rate is adjusted to the correct ΔH to maintain an isokinetic sample rate. The probe is moved at equal intervals to each sample point. Stack gas data and sample system data is collected at each sample point and the sample flow rate is adjusted to maintain an isokinetic sample rate.

During port changes, the sample pump is turned off and both the time and DGM reading are recorded. A mid run leak check is only performed at a port change if the sampler suspects the sample system integrity has been compromised while moving equipment between ports.

At the conclusion of a sample run, the coarse valve is closed, the sample pump is turned off, the power to the probe and oven box heaters are turned off, and the time and DGM reading are recorded. A posttest leak check is performed at a vacuum higher than the highest observed vacuum during the test. A leakage rate $\leq$ 4 percent of the average sampling rate or 0.020 cfm, whichever is less, is considered passing. A failed posttest leak check does not automatically void the test run. Sample volume correction may be performed as outlined in the method.

Sample Recovery: At the conclusion of the testing, the sample system is moved to the recovery area. In many cases part of the recovery will be performed at the sample location as the sample site can have a cleaner atmosphere than a location at ground level that is subject to plant operations that can create large quantities of localized dust. Also, excessive handling of the sample system can provide opportunities for sample contamination or loss of sample to occur.

The probe and nozzles are recovered by rinsing with reagent grade acetone into the appropriate container while brushing a minimum of three times with a clean nylon bristle brush or until the rinse solution runs clear. The F½ filter is recovered into its labeled original petri dish. The front section of the filter holder is recovered by rinsing with reagent grade acetone into the appropriate container while brushing with a clean nylon bristle brush. All acetone rinsing and brushing is done until the acetone rinse runs clear and the sampler is sure all particulate matter has been collected. The probe extension or connecting glassware is recovered with reagent grade water, acetone, and hexane into the appropriate containers. The first and second impingers and front half of the CPM filter holder are recovered after a N_2 purge by weighing the impingers and collecting the contents followed by two reagent grade water, acetone, and hexane rinses of all glassware. The CPM filter is recovered into its labeled original petri dish. The third and fourth impingers are weighed. All liquid levels are noted before transferring to the analytical lab for analysis.

The sample fractions are labeled as follows:

- Container No. 1 – Front half probe recovery
- Container No. 2 – Front half filter
- Container No. 3 – Back half aqueous liquid impinger contents, optional purge water, and two rinses with water
- Container No. 4 – Back half organic rinses, one rinse with acetone followed by two rinses with hexane, collected in an amber jar
- Container No. 5 – Back half condensable particulate filter (CPM) filter
- Container No. 6 – Acetone field reagent blank
- Container No. 7 – Water field reagent blank
- Container No. 8 – Hexane field reagent blank
- Container No. 9 – Field train proof blank, inorganic rinses
- Container No. 10 – Field train proof blank, organic rinses

Sample Analysis:

Sample analysis is performed as written in section 11 of both USEPA 5 and 202

Reporting: The results for each sample fraction are reported to the nearest 0.1 mg. The results are blank corrected and presented separately as filterable particulate matter, condensable particulate matter and together as total particulate matter. The published QA procedure is modified by supplementing with collection of an additional probe proof blank and filter blank for USEPA 5. The blanks are used to blank correct the field sample results as appropriate.

4.1.4 USEPA Method 18 (Volatile Organic Compounds)

Integrated samples are collected through a clean and purged 316 stainless steel, glass, or quartz probe and Teflon line directly into a new Tedlar bag by utilizing an evacuated chamber to draw the exhaust gas into the bag. The Tedlar bags are purged twice with the exhaust gas before collecting each sample. At the conclusion of sampling, the Tedlar bag is closed off, labeled, and analyzed onsite. The samples are analyzed for volatile organic compounds (VOC) by gas chromatography equipped with flame ionization detection (GC/FID).

4.1.5 BAAQMD ST-1B (Ammonia)

General: Testing is conducted in accordance with BAAQMD ST-1B. Sample gas is collected in a solution of 0.1 N hydrochloric acid, which absorbs the ammonia.

Sampling Train: The impinger train is kept in an ice bath during the test run. Impingers 1 and 2 contain 100 milliliters of 0.1 N HCl, impinger 3 is empty, and impinger 4 contains a tared

amount of silica gel. The impingers are weighed before and after sampling to allow calculation of percent moisture in the gas stream. The probe and sample box are connected to the control module using an umbilical line. The control module consists of a vacuum pump, a calibrated dry gas meter, and a calibrated orifice meter. The control module components measure pressure, temperature, and flow rate throughout the train.

Sampling Procedure: A leak check is performed before sampling begins by bringing the sample train to 15-inches of mercury vacuum. Leakage has to be less than 0.02 cfm or 4% of the average sampling rate prior to beginning a test. After sampling is complete, a final leak check is performed on the sampling train. This leak check is performed at 15-inches of mercury vacuum or at the highest vacuum achieved during the test. All pertinent data is recorded on field data sheets.

Sample Recovery: Each impinger is removed from the ice bath, wiped dry, and weighed to allow calculation of percent moisture in the gas stream. A polyethylene bottle labeled as NH3 is used to collect the contents of the impingers and the distilled water rinses of the impingers and their connectors. A chain-of-custody form is filled out with sample numbers for tracking purposes.

Sample Analysis for Ammonia: The volume of the NH_3 sample bottle is measured and an aliquot is transferred to a 250-milliliter beaker using a 100-milliliter NBS class A pipet. A Teflon stir bar is carefully placed in the beaker and NH3 ionic strength adjuster (ISA) solution is added until a blue color persists. The ammonia content is determined using a specific ion electrode. The electrode is rinsed with distilled water, immersed in the liquid, and allowed to reach a stable ppm (and millivolt) reading. The ion selective electrode (ISE) meter is calibrated with 1-ppm, 10-ppm and 100-ppm standards (3-point calibration) prior to sample analysis. Quality control duplicates, spikes, and blanks (0.1 N HCl impinger solution) samples are also analyzed.

4.1.6 ASTM D1945/D3246 (Fuel Sulfur, F_d, and HHV)

Fuel samples are collected from the plant fuel supply into Tedlar bags and fuel bombs using a modified Gas Processors Association (GPA) 2166-86 method for sampling of natural gas. Analysis is performed by ASTM D1945 and D3246 for F_d, HHV (GCV), and fuel sulfur content. The results of the fuel analyses are utilized in the calculation of emissions of sulfur oxides and the mass emission rates of other stack constituents where appropriate.

For analysis by ASTM D1945, components in a representative fuel sample are physically separated by gas chromatography (GC) and compared to calibration data obtained under identical operating conditions from a reference standard mixture of known composition. The numerous heavy end components of the sample are grouped into irregular peaks by reversing the direction of the carrier gas through the column at such time as to group the heavy ends either as C5 and

heavier, C6 and heavier, or C7 and heavier. The composition of the sample is calculated by comparing either the peak heights, or the peak areas, or both, with the corresponding values obtained with the reference standard

A one cc (mL) sample is injected into a gas chromatograph where it is eluted through a megabore, thick film, methyl silicone liquid phase, open tubular partitioning column or other suitable column, and separated into its individual constituents. As sulfur compounds elute from the gas chromatographic column, they are processed in a flame ionization detector (FID) or a heated combustion zone. The products are collected and transferred to a sulfur Chemiluminescence detector (SCD). This technique provides a sensitive, selective, linear response to volatile sulfur compounds and may be used while collecting hydrocarbon and fixed gas data from a FID

For analysis by ASTM D3246, a sample is injected into a combustion tube maintained at about 800°C having a flowing stream of gas containing about 80 % oxygen and 20 % inert gas (for example, nitrogen, argon, etc.). Oxidative pyrolysis converts the sulfur to sulfur dioxide which then flows into a titration cell where it reacts with triiodide ion present in the electrolyte. The triiodide thus consumed, is coulometrically replaced and the total current required to replace it is a measure of the sulfur present in the sample injected.

4.1.7 USEPA Method 19 (Volumetric Flow Rates)

Volumetric flow and the mass emission rates for the determination of gaseous emissions are calculated stoichiometrically by USEPA Method 19. The fuel factor (Fd) and higher heating value (HHV) are either assumed 8,710 dscf/MMBtu and 1,040 btu/scf, data collected from the plant's DAHS that is from a regular certified analysis by the gas supplier, or derived from fuel samples collected during testing.

4.1.8 Performance Specifications 2, 3, 4A, and 6 (40 CFR 60 RATA)

A relative accuracy test audit (RATA), as required by 40 CFR 60, of each unit's continuous emissions monitoring system (CEMS) is conducted using the applicable performance specifications. A minimum of nine runs are performed as outlined in field test schedule. Additional runs may be performed as necessary. A maximum of three may be excluded as long as nine runs are used to calculate relative accuracy (RA). A summary of these specifications is presented here.

Performance Specification 2

1. The relative accuracy (RA) of the unit's CEMS must be no greater than 20 percent when the reference method (RM) mean value is used to calculate RA (the average emissions during the test are greater than 50 percent of the emission standard) or 10 percent when the applicable emission standard (AS) is used to calculate RA.

Performance Specification 3

1. The relative accuracy (RA) of the unit's CEMS must be no greater than 1.0 percent O_2 based on the absolute difference (AD) between the average reference method (RM) data and the unit's CEMS data.

Performance Specifications 4A

1. The relative accuracy (RA) of the CEMS must be no greater than 10 percent when the average reference method (RM) value is used to calculate RA, 5 percent when the applicable emission standard (AS) is used to calculate RA, or within 5 ppmv when the RA is calculated as the absolute average difference (AD) between the RM and CEMS plus the 2.5 percent confidence coefficient ($CC_{2.5\%}$).

2. Alternately, under conditions where the average CO emissions are less than 10 percent of the standard and this is verified by Method 10, a cylinder gas audit may be performed in place of the RA test to determine compliance with these limits. In this case, the cylinder gas shall contain CO in 12 percent carbon dioxide as an interference check. If this option is exercised, Method 10 must be used to verify that emission levels are less than 10 percent of the standard.

Performance Specification 6

1. The relative accuracy (RA) of the unit's CERMS must be no greater than 20 percent when the reference method (RM) mean value is used to calculate RA (the average emissions during the test are greater than 50 percent of the emission standard) or 10 percent when the applicable emission standard (AS) is used to calculate RA.

4.1.9 40 CFR 75 Audit of the CEMS (40 CFR 75 RATA)

A relative accuracy test audit (RATA), as required by 40 CFR 75, of each unit's continuous emissions monitoring system (CEMS) is conducted using the applicable specifications outlined in 40 CFR 75 Appendices A and B. A summary of these specifications is presented here

Diluent Monitor (O_2)

1. 40 CFR 75 App A 3.3.3: The relative accuracy for CO_2 and O_2 monitors shall not exceed 10.0 percent. The relative accuracy test results are also acceptable if the difference between the mean value of the CO_2 or O_2 monitor measurements and the corresponding reference method measurement mean value, calculated using equation A-7 of this appendix, does not exceed ±1.0 percent CO_2 or O_2.

2. 40 CFR 75 App B 2.3.1.2(a): The relative accuracy during the audit of an SO_2 or CO_2 pollutant concentration monitor (including an O_2 pollutant monitor used to measure CO_2 using the procedures in appendix F to this part), or of a CO_2 or O_2 diluent monitor used to determine heat input, or of a NO_X concentration monitoring system, or of a NO_X-diluent monitoring system, or of an SO_2-diluent continuous emissions monitoring system is ≤ 7.5 percent

3. 40 CFR 75 App B 2.3.1.2(h): For a CO_2 or O_2 monitor, when the mean difference between the reference method values from the RATA and the corresponding monitor values is within ±0.7 percent CO_2 or O_2

NO_X-diluent monitoring systems

1. 40 CFR 75 App A 3.3.2(a): The relative accuracy for NO_X-diluent continuous emission monitoring systems shall not exceed 10.0 percent.

2. 40 CFR 75 App B 2.3.1.2(f): For units with low NO_X emission rates (average NO_X emission rate measured by the reference method during the RATA ≤ 0.200 lb/mmBtu), when a NO_X-diluent continuous emission monitoring system fails to achieve a relative accuracy ≤ 7.5 percent, but the monitoring system mean value from the RATA, calculated using Equation A-7 in appendix A to this part, is within ±0.015 lb/mmBtu of the reference method mean value.

3. 40 CFR 75 App A 3.3.2(b): For affected units where the average of the reference method measurements of NO_X emission rate during the relative accuracy test audit is less than or equal to 0.200 lb/mmBtu, the difference between the mean value of the continuous emission monitoring system measurements and the reference method mean value shall not exceed ±0.020 lb/mmBtu, wherever the relative accuracy specification of 10.0 percent is not achieved.

4. 40 CFR 75 App A 6.5(g): For each SO_2 or CO_2 emissions concentration monitor, each flow monitor, each CO_2 or O_2 diluent monitor used to determine heat input, each NO_X concentration monitoring system used to determine NO_X mass emissions, as defined in § 75.71(a)(2), each moisture monitoring system, and each NO_X-diluent CEMS, calculate the relative accuracy, in accordance with section 7.3 or 7.4 of this appendix, as applicable. In addition (except for CO_2, O_2, or moisture monitors), test for bias and determine the appropriate bias adjustment

factor, in accordance with sections 7.6.4 and 7.6.5 of this appendix, using the data from the relative accuracy test audits

4.2 Process Data

Process data will be collected from the plant's DAHS as necessary to document test conditions during the tests. At a minimum, the process data outlined in Table 1.1 will be collected. This data will be presented in the source test report.

5.0 QA/QC Activities

5.1 Quality Management Plan

TRC has developed and instituted a strict Quality Management Plan (QMP) as required under ASTM D7036 for certification as an Air Emissions Testing Body (AETB). The QMP describes the quality processes, procedures, and document controls used through each step of the project necessary to ensure the data collection and reporting meets the standards of the client and regulatory community. A copy of the QMP is available from TRC upon written request.

6.0 Reporting and Data Reduction Requirements

6.1 Report Format, Data Reduction, and Summary

TRC uses a modified version of the USEPA recommended IMRAD format (introduction, methods, results, discussion, and conclusion). The reporting format is continually updated to meet the requirements of the QMP. The final format of the source test report may be updated to reflect the current report format. The following outline is an example of format used for reporting:

1.0 Introduction
2.0 Facility and Source Description
3.0 Test Program
4.0 Sampling and Analytical Procedures
5.0 QA/QC Activities
6.0 Results Reporting

Data reduction and results summaries will be presented in tabulated form in the introduction and results reporting sections of final report. An example of a typical results table is presented below.

Table 6.1: Results Summary Table Example

Parameter	Result	Emission Limit
CO, ppmvd volume dry CO, ppmvd @ 15% O2	X.X X.X	-- X.X ppmvd @ 15% O_2

7.0 Plant Entry and Safety

7.1 Safety Responsibilities

The plant safety coordinator is responsible for ensuring all personnel onsite comply with plant entry and safety requirements. The plant manager or site contact has the ultimate authority to change any safety procedure or policy as deemed necessary for proper implementation safety procedures unique to this test program. The TRC project manager is the Site Safety Officer for all TRC activities and has the authority and responsibility to negotiate any changes to the facility safety policies necessary to ensure the safety of the test team and any other staff working in the vicinity of testing operations. All personnel onsite have the authority to stop any work for any reason if they feel the safety of any personnel or equipment is in jeopardy.

7.2 Safety Program

TRC has a comprehensive health and safety program that includes an Illness and Injury Prevention Program (IIPP). The IIPP includes written policies and procedures, designation of responsibility, training of employees and supervisors, medical monitoring of employees, requirements for use of personal protection equipment, hazard communication, safety meetings, and routine safety audits. TRC's policy is to provide all safety-related equipment to its employees. Copies of the TRC safety plans and training records are available upon written request.

7.3 Safety Requirements

The minimum TRC safety requirements for its field staff are as follows:

1. Wear all required PPE
2. Adhere to plant and TRC safety policies and procedures
3. Obtain all necessary JHA, safe work permits, etc. prior to starting work
4. Attend and participate in onsite safety meeting, orientations, or trainings
5. Raise any safety concerns to the project manager

Appendix A: Permit(s) to Operate

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING

Permit to Operate

FACILITY: C-4140 **EXPIRATION DATE:** 04/30/2016

LEGAL OWNER OR OPERATOR: GWF ENERGY LLC
MAILING ADDRESS: HANFORD ENERGY PARK PEAKER PLANT
4300 RAILROAD AVE
PITTSBURG, CA 94565

FACILITY LOCATION: 10596 IDAHO AVENUE
HANFORD ENERGY PARK PEAKER PLANT
HANFORD, CA 93230

FACILITY DESCRIPTION: POWER GENERATION

The Facility's Permit to Operate may include Facility-wide Requirements as well as requirements that apply to specific permit units.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require prior District approval. This permit shall be posted as prescribed in District Rule 2010.

Seyed Sadredin
Executive Director / APCO

David Warner
Director of Permit Services

San Joaquin Valley
Air Pollution Control District

FACILITY: C-4140-0-1 **EXPIRATION DATE:** 04/30/2016

FACILITY-WIDE REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. The owner or operator shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100, 6.1; County Rules 110 (Fresno, Stanislaus, San Joaquin); 109 (Merced); 113 (Madera); and 111 (Kern, Tulare, Kings)] Federally Enforceable Through Title V Permit
3. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100, 7.0; County Rules 110 (Fresno, Stanislaus, San Joaquin); 109 (Merced); 113 (Madera); and 111 (Kern, Tulare, Kings)] Federally Enforceable Through Title V Permit
4. The owner or operator of any stationary source operation that emits more than 25 tons per year of nitrogen oxides or reactive organic compounds, shall provide the District annually with a written statement in such form and at such time as the District prescribes, showing actual emissions of nitrogen oxides and reactive organic compounds from that source. [District Rule 1160, 5.0] Federally Enforceable Through Title V Permit
5. Any person building, altering or replacing any operation, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants, shall first obtain an Authority to Construct (ATC) from the District unless exempted by District Rule 2020 (12/20/07). [District Rule 2010, 3.0 and 4.0; and 2020] Federally Enforceable Through Title V Permit
6. The permittee must comply with all conditions of the permit including permit revisions originated by the District. All terms and conditions of a permit that are required pursuant to the Clean Air Act (CAA), including provisions to limit potential to emit, are enforceable by the EPA and Citizens under the CAA. Any permit noncompliance constitutes a violation of the CAA and the District Rules and Regulations, and is grounds for enforcement action, for permit termination, revocation, reopening and reissuance, or modification; or for denial of a permit renewal application. [District Rules 2070, 7.0; 2080; and 2520, 9.9.1 and 9.13.1] Federally Enforceable Through Title V Permit
7. A Permit to Operate or an Authority to Construct shall not be transferred unless a new application is filed with and approved by the District. [District Rule 2031] Federally Enforceable Through Title V Permit
8. Every application for a permit required under Rule 2010 (12/17/92) shall be filed in a manner and form prescribed by the District. [District Rule 2040] Federally Enforceable Through Title V Permit
9. The operator shall maintain records of required monitoring that include: 1) the date, place, and time of sampling or measurement; 2) the date(s) analyses were performed; 3) the company or entity that performed the analysis; 4) the analytical techniques or methods used; 5) the results of such analysis; and 6) the operating conditions at the time of sampling or measurement. [District Rule 2520, 9.4.1] Federally Enforceable Through Title V Permit
10. The operator shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, or report. Support information includes copies of all reports required by the permit and, for continuous monitoring instrumentation, all calibration and maintenance records and all original strip-chart recordings. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

FACILITY-WIDE REQUIREMENTS CONTINUE ON NEXT PAGE

11. The operator shall submit reports of any required monitoring at least every six months unless a different frequency is required by an applicable requirement. All instances of deviations from permit requirements must be clearly identified in such reports. [District Rule 2520, 9.5.1] Federally Enforceable Through Title V Permit

12. Deviations from permit conditions must be promptly reported, including deviations attributable to upset conditions, as defined in the permit. For the purpose of this condition, promptly means as soon as reasonably possible, but no later than 10 days after detection. The report shall include the probable cause of such deviations, and any corrective actions or preventive measures taken. All required reports must be certified by a responsible official consistent with section 10.0 of District Rule 2520 (6/21/01). [District Rules 2520, 9.5.2 and 1100, 7.0] Federally Enforceable Through Title V Permit

13. If for any reason a permit requirement or condition is being challenged for its constitutionality or validity by a court of competent jurisdiction, the outcome of such challenge shall not affect or invalidate the remainder of the conditions or requirements in that permit. [District Rule 2520, 9.7] Federally Enforceable Through Title V Permit

14. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. [District Rule 2520, 9.8.2] Federally Enforceable Through Title V Permit

15. The permit may be modified, revoked, reopened and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. [District Rule 2520, 9.8.3] Federally Enforceable Through Title V Permit

16. The permit does not convey any property rights of any sort, or any exclusive privilege. [District Rule 2520, 9.8.4] Federally Enforceable Through Title V Permit

17. The Permittee shall furnish to the District, within a reasonable time, any information that the District may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the District copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee may furnish such records directly to EPA along with a claim of confidentiality. [District Rule 2520, 9.8.5] Federally Enforceable Through Title V Permit

18. The permittee shall pay annual permit fees and other applicable fees as prescribed in Regulation III of the District Rules and Regulations. [District Rule 2520, 9.9] Federally Enforceable Through Title V Permit

19. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 2520, 9.13.2.1] Federally Enforceable Through Title V Permit

20. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 2520, 9.13.2.2] Federally Enforceable Through Title V Permit

21. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to inspect at reasonable times any facilities, equipment, practices, or operations regulated or required under the permit. [District Rule 2520, 9.13.2.3] Federally Enforceable Through Title V Permit

22. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or applicable requirements. [District Rule 2520, 9.13.2.4] Federally Enforceable Through Title V Permit

23. No air contaminants shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann #1 or equivalent to 20% opacity and greater, unless specifically exempted by District Rule 4101 (02/17/05). If the equipment or operation is subject to a more stringent visible emission standard as prescribed in a permit condition, the more stringent visible emission limit shall supersede this condition. [District Rule 4101, and County Rules 401 (in all eight counties in the San Joaquin Valley)] Federally Enforceable Through Title V Permit

FACILITY-WIDE REQUIREMENTS CONTINUE ON NEXT PAGE

24. No person shall manufacture, blend, repackage, supply, sell, solicit or apply any architectural coating with a VOC content in excess of the corresponding limit specified in Table of Standards 1 effective until 12/30/10 or Table of Standards 2 effective on and after 1/1/11 of District Rule 4601 (12/17/09) for use or sale within the District. [District Rule 4601, 5.1] Federally Enforceable Through Title V Permit

25. All VOC-containing materials subject to Rule 4601 (12/17/09) shall be stored in closed containers when not in use. [District Rule 4601, 5.4] Federally Enforceable Through Title V Permit

26. The permittee shall comply with all the Labeling and Test Methods requirements outlined in Rule 4601 sections 6.1 and 6.3 (12/17/09). [District Rule 4601, 6.1 and 6.3] Federally Enforceable Through Title V Permit

27. With each report or document submitted under a permit requirement or a request for information by the District or EPA, the permittee shall include a certification of truth, accuracy, and completeness by a responsible official. [District Rule 2520, 9.13.1 and 10.0] Federally Enforceable Through Title V Permit

28. If the permittee performs maintenance on, or services, repairs, or disposes of appliances, the permittee shall comply with the standards for Recycling and Emissions Reduction pursuant to 40 CFR Part 82, Subpart F. [40 CFR 82 Subpart F] Federally Enforceable Through Title V Permit

29. If the permittee performs service on motor vehicles when this service involves the ozone-depleting refrigerant in the motor vehicle air conditioner (MVAC), the permittee shall comply with the standards for Servicing of Motor Vehicle Air Conditioners pursuant to all the applicable requirements as specified in 40 CFR Part 82, Subpart B. [40 CFR Part 82, Subpart B] Federally Enforceable Through Title V Permit

30. Disturbances of soil related to any construction, demolition, excavation, extraction, or other earthmoving activities shall comply with the requirements for fugitive dust control in District Rule 8021 unless specifically exempted under Section 4.0 of Rule 8021 (8/19/2004) or Rule 8011 (8/19/2004). [District Rule 8021 and 8011] Federally Enforceable Through Title V Permit

31. Outdoor handling, storage and transport of any bulk material which emits dust shall comply with the requirements of District Rule 8031, unless specifically exempted under Section 4.0 of Rule 8031 (8/19/2004) or Rule 8011 (8/19/2004). [District Rule 8031 and 8011] Federally Enforceable Through Title V Permit

32. An owner/operator shall prevent or cleanup any carryout or trackout in accordance with the requirements of District Rule 8041 Section 5.0, unless specifically exempted under Section 4.0 of Rule 8041 (8/19/2004) or Rule 8011 (8/19/2004). [District Rule 8041 and 8011] Federally Enforceable Through Title V Permit

33. Whenever open areas are disturbed, or vehicles are used in open areas, the facility shall comply with the requirements of Section 5.0 of District Rule 8051, unless specifically exempted under Section 4.0 of Rule 8051 (8/19/2004) or Rule 8011 (8/19/2004). [District Rule 8051 and 8011] Federally Enforceable Through Title V Permit

34. Any paved road or unpaved road shall comply with the requirements of District Rule 8061 unless specifically exempted under Section 4.0 of Rule 8061 (8/19/2004) or Rule 8011 (8/19/2004). [District Rule 8061 and Rule 8011] Federally Enforceable Through Title V Permit

35. Any unpaved vehicle/equipment area that anticipates more than 50 Average annual daily Trips (AADT) shall comply with the requirements of Section 5.1.1 of District Rule 8071. Any unpaved vehicle/equipment area that anticipates more than 150 vehicle trips per day (VDT) shall comply with the requirements of Section 5.1.2 of District Rule 8071. On each day that 25 or more VDT with 3 or more axles will occur on an unpaved vehicle/equipment traffic area, the owner/operator shall comply with the requirements of Section 5.1.3 of District Rule 8071. On each day when a special event will result in 1,000 or more vehicles that will travel/park on an unpaved area, the owner/operator shall comply with the requirements of Section 5.1.4 of District Rule 8071. All sources shall comply with the requirements of Section 5.0 of District Rule 8071 unless specifically exempted under Section 4.0 of Rule 8071 (9/16/2004) or Rule 8011 (8/19/2004). [District Rule 8071 and Rule 8011] Federally Enforceable Through Title V Permit

36. Any owner or operator of a demolition or renovation activity, as defined in 40 CFR 61.141, shall comply with the applicable inspection, notification, removal, and disposal procedures for asbestos containing materials as specified in 40 CFR 61.145 (Standard for Demolition and Renovation). [40 CFR 61 Subpart M] Federally Enforceable Through Title V Permit

FACILITY-WIDE REQUIREMENTS CONTINUE ON NEXT PAGE

37. The permittee shall submit certifications of compliance with the terms and standards contained in Title V permits, including emission limits, standards and work practices, to the District and the EPA annually (or more frequently as specified in an applicable requirement or as specified by the District). The certification shall include the identification of each permit term or condition, the compliance status, whether compliance was continuous or intermittent, the methods used for determining the compliance status, and any other facts required by the District to determine the compliance status of the source. [District Rule 2520, 9.16] Federally Enforceable Through Title V Permit

38. The permittee shall submit an application for Title V permit renewal to the District at least six months, but not greater than 18 months, prior to the permit expiration date. [District Rule 2520, 5.2] Federally Enforceable Through Title V Permit

39. When a term is not defined in a Title V permit condition, the definition in the rule cited as the origin and authority for the condition in a Title V permits shall apply. [District Rule 2520, 9.1.1] Federally Enforceable Through Title V Permit

40. Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following outdated SIP requirements: Rule 401 (Madera, Fresno, Kern, Kings, San Joaquin, Stanislaus, Tulare and Merced), Rule 110 (Fresno, Stanislaus, San Joaquin), Rule 109 (Merced), Rule 113 (Madera), Rule 111 (Kern, Tulare, Kings), and Rule 202 (Fresno, Kern, Tulare, Kings, Madera, Stanislaus, Merced, San Joaquin). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

41. Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following applicable requirements: SJVUAPCD Rules 1100, sections 6.1 and 7.0 (12/17/92); 2010, sections 3.0 and 4.0 (12/17/92); 2031 (12/17/92); 2040 (12/17/92); 2070, section 7.0 (12/17/92); 2080 (12/17/92); 4101 (2/17/05); 4601 (12/17/09); 8021 (8/19/2004); 8031 (8/19/2004); 8041 (8/19/2004); 8051 (8/19/2004); 8061 (8/19/2004); and 8071 (9/16/2004). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

42. The reporting periods for the Report of Required Monitoring and the Compliance Certification Report begin January 1 of every year, unless alternative dates are approved by the District Compliance Division. These reports are due within 30 days after the end of the reporting period. [District Rule 2520] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-4140-1-4 **EXPIRATION DATE:** 04/30/2016

EQUIPMENT DESCRIPTION:
47.5 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #1 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEMS, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION AND AN OXIDATION CATALYST

PERMIT UNIT REQUIREMENTS

1. Facilities C-603 and C-4140 are the same stationary source for SJVAPCD permitting purposes. [District Rule 2201] Federally Enforceable Through Title V Permit
2. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
3. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
5. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, and fuel consumption. [District Rules 2201 and 4001] Federally Enforceable Through Title V Permit
6. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201] Federally Enforceable Through Title V Permit
7. The CTG shall be equipped with continuous emission monitor (CEM) for NOx (before and after SCR system), CO, and O2. Continuous emission monitor shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as normal operating conditions. [District Rules 2201, 4001, and 4703, 6.2.1] Federally Enforceable Through Title V Permit
8. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080] Federally Enforceable Through Title V Permit
9. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NOx, CO, and O2 analyzer during District inspections. [District Rule 1081] Federally Enforceable Through Title V Permit
10. The owner or operator shall install, operate and maintain in calibration a system which continuously measures and records: emissions control system operating parameters, elapsed time of operation of the turbine, the fuel consumption, and the exhaust gas NOx and O2 concentrations. [40 CFR 60.334(b)] Federally Enforceable Through Title V Permit
11. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4, 3.4.1 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

12. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit
13. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
14. Sulfur compound emissions shall not exceed 0.2% by volume, 2,000 ppmv, on a dry basis averaged over 15 consecutive minutes. [40 CFR 60.333(a); Kings County Rule 407] Federally Enforceable Through Title V Permit
15. The CTG shall be fired exclusively on PUC-regulated natural gas with a sulfur content no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201; 40 CFR 60.333(a) and Kings County Rule 407] Federally Enforceable Through Title V Permit
16. If this unit is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
17. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (Unit #1 and Unit #2) shall not exceed either of the following limits: NOx - 15.4 lb or CO - 15.4 lb per event. [District Rule 2201] Federally Enforceable Through Title V Permit
18. Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operations, and the unit meets the lb/hr and ppmvd emission limits specified within this permit. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. [District Rule 4703, 3.26, 3.29 and 5.3] Federally Enforceable Through Title V Permit
19. Startup and shutdown durations shall not exceed a time period of one hour each per occurrence. [District Rules 2201 & 4703, 5.3.1.1] Federally Enforceable Through Title V Permit
20. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703, 5.3.2] Federally Enforceable Through Title V Permit
21. Emission rates from this unit, excluding startup and shutdown, shall not exceed any of the following limits: PM10: 3.03 lb/hr, SOx (as SO2): 0.33 lb/hr, NOx (as NO2): 3.7 ppmvd @ 15% O2 and 6.3 lb/hr, VOC (as methane): 2.0 ppmvd @ 15% O2 and 1.19 lb/hr, or CO: 6.0 ppmvd @ 15% O2 and 6.2 lb/hr. All emission limits, except ammonia, are three hour rolling averages. [District Rules 2201, 4001, and 4703, 5.1.2 & 5.2] Federally Enforceable Through Title V Permit
22. The ammonia (NH3) emissions shall not exceed 10 ppmvd @ 15% O2 over a 24 hour rolling average. [District Rule 2201] Federally Enforceable Through Title V Permit
23. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O2 = ((a - (b x c/1,000,000)) x (1,000,000 / b) x d, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NOx concentration ppmvd @ 15% O2 across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH3 CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]
24. Maximum daily emissions from this unit shall not exceed any of the following limits: PM10 - 72.8 lb/day; SOx (as SO2) - 7.8 lb/day; NOx (as NO2) - 151.5 lb/day; VOC - 28.7 lb/day; or CO - 150.3 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
25. Maximum annual emissions from this unit shall not exceed any of the following limits: NOx (as NO2) - 52,314 lb/year; VOC - 9,764 lb/year; CO - 51,947 lb/year; PM10 - 25,176 lb/year; or SOx (as SO2) - 2,710 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit
26. The owner or operator shall be required to conform to the compliance testing and sampling procedures described in District Rule 1081 (as amended 12/16/93). [District Rule 1081] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

27. Compliance testing to demonstrate compliance with PM10, NOx (as NO2), VOC, CO, ammonia emission rates, and fuel gas sulfur content shall be conducted at least once every twelve months. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

29. The following test methods shall be used PM10: EPA Method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703, 6.4] Federally Enforceable Through Title V Permit

30. The owner or operator shall provide source test information annually regarding the exhaust gas NOx and CO concentration corrected to 15% O2 (dry). EPA Methods 7E or 20 shall be used for NOx emissions. EPA Methods 10 or 10B shall be used for CO emissions. EPA Methods 3, 3A, or 20 shall be used for Oxygen content of the exhaust gas. [40 CFR 60.8(a), 40 CFR 60.335(a) and District Rule 4703, 5.1, 6.3.1, 6.4.1, 6.4.2, and 6.4.3] Federally Enforceable Through Title V Permit

31. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit

32. Results of the CEM system shall be averaged over a three hour period, using consecutive 15-minute sampling periods in accordance with either EPA Method 7E or EPA Method 20 for NOx, EPA Test Methods 10 or 10B for CO, or EPA Methods 3, 3A, or 20 for O2, or, if continuous emission monitors are used, all applicable requirements of CFR 60.13. [40 CFR 60.13 and District Rule 4703, 5.1, 6.4] Federally Enforceable Through Title V Permit

33. The owner or operator shall not operate the gas turbine under load conditions, except as allowed by the transitional operation period, which results in the measured CO emissions concentration exceeding 200 ppmv @ 15% O2. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit

34. The HHV and LHV of the fuel combusted shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.332(a) and (b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit

35. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080] Federally Enforceable Through Title V Permit

36. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit

37. Operators of CEM systems installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

38. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080] Federally Enforceable Through Title V Permit

39. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080] Federally Enforceable Through Title V Permit

40. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080] Federally Enforceable Through Title V Permit

41. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

42. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), and emission measurements. [40 CFR 60.8(d) and District Rule 1080, 7.0] Federally Enforceable Through Title V Permit

43. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [District Rule 2201] Federally Enforceable Through Title V Permit

44. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, type and quantity of fuel used. [District Rule 4703, 6.2.6] Federally Enforceable Through Title V Permit

45. The operator performing start-up or shutdown of this unit shall keep records of the duration of start-up or shutdown. [District Rule 4703, 6.2.8] Federally Enforceable Through Title V Permit

46. The operator of this unit shall keep records of the date, time and duration of each bypass transition period and each primary re-ignition period. [District Rule 4703, 6.2.11] Federally Enforceable Through Title V Permit

47. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirement: Kings County Rule 407 as of the date of permit issuance. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

48. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.7(b), 60.8, 60.8(d), 60.13, and 60.13(b); District Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-4140-2-4 **EXPIRATION DATE:** 04/30/2016

EQUIPMENT DESCRIPTION:
47.5 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #2 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEMS, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION AND AN OXIDATION CATALYST

PERMIT UNIT REQUIREMENTS

1. Facilities C-603 and C-4140 are the same stationary source for SJVAPCD permitting purposes. [District Rule 2201] Federally Enforceable Through Title V Permit
2. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
3. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
5. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, and fuel consumption. [District Rules 2201 and 4001] Federally Enforceable Through Title V Permit
6. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201] Federally Enforceable Through Title V Permit
7. The CTG shall be equipped with continuous emission monitor (CEM) for NOx (before and after SCR system), CO, and O2. Continuous emission monitor shall meet the requirements of 40 CFR parts 60 and 75 and shall be capable of monitoring emissions during startups and shutdowns as well as normal operating conditions. [District Rules 2201, 4001, and 4703, 6.2.1] Federally Enforceable Through Title V Permit
8. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080] Federally Enforceable Through Title V Permit
9. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NOx, CO, and O2 analyzer during District inspections. [District Rule 1081] Federally Enforceable Through Title V Permit
10. The owner or operator shall install, operate and maintain in calibration a system which continuously measures and records: emissions control system operating parameters, elapsed time of operation of the turbine, the fuel consumption, and the exhaust gas NOx and O2 concentrations. [40 CFR 60.334(b)] Federally Enforceable Through Title V Permit
11. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4, 3.4.1 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

12. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2] Federally Enforceable Through Title V Permit
13. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit
14. Sulfur compound emissions shall not exceed 0.2% by volume, 2,000 ppmv, on a dry basis averaged over 15 consecutive minutes. [40 CFR 60.333(a); Kings County Rule 407] Federally Enforceable Through Title V Permit
15. The CTG shall be fired exclusively on PUC-regulated natural gas with a sulfur content no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201; 40 CFR 60.333(a) and Kings County Rule 407] Federally Enforceable Through Title V Permit
16. If this unit is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
17. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (Unit #1 and Unit #2) shall not exceed either of the following limits: NOx - 15.4 lb or CO - 15.4 lb per event. [District Rule 2201] Federally Enforceable Through Title V Permit
18. Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operations, and the unit meets the lb/hr and ppmvd emission limits specified within this permit. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. [District Rule 4703, 3.26, 3.29 and 5.3] Federally Enforceable Through Title V Permit
19. Startup and shutdown durations shall not exceed a time period of one hour each per occurrence. [District Rules 2201 & 4703, 5.3.1.1] Federally Enforceable Through Title V Permit
20. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703, 5.3.2] Federally Enforceable Through Title V Permit
21. Emission rates from this unit, excluding startup and shutdown, shall not exceed any of the following limits: PM10: 3.03 lb/hr, SOx (as SO2): 0.33 lb/hr, NOx (as NO2): 3.7 ppmvd @ 15% O2 and 6.3 lb/hr, VOC (as methane): 2.0 ppmvd @ 15% O2 and 1.19 lb/hr, or CO: 6.0 ppmvd @ 15% O2 and 6.2 lb/hr. All emission limits, except ammonia, are three hour rolling averages. [District Rules 2201, 4001, and 4703, 5.1.2 & 5.2] Federally Enforceable Through Title V Permit
22. The ammonia (NH3) emissions shall not exceed 10 ppmvd @ 15% O2 over a 24 hour rolling average. [District Rule 2201] Federally Enforceable Through Title V Permit
23. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O2 = ((a - (b x c/1,000,000)) x (1,000,000 / b) x d, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NOx concentration ppmvd @ 15% O2 across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH3 CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]
24. Maximum daily emissions from this unit shall not exceed any of the following limits: PM10 - 72.8 lb/day; SOx (as SO2) - 7.8 lb/day; NOx (as NO2) - 151.5 lb/day; VOC - 28.7 lb/day; or CO - 150.3 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
25. Maximum annual emissions from this unit shall not exceed any of the following limits: NOx (as NO2) - 52,314 lb/year; VOC - 9,764 lb/year; CO - 51,947 lb/year; PM10 - 25,176 lb/year; or SOx (as SO2) - 2,710 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit
26. The owner or operator shall be required to conform to the compliance testing and sampling procedures described in District Rule 1081 (as amended 12/16/93). [District Rule 1081] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

27. Compliance testing to demonstrate compliance with PM10, NOx (as NO2), VOC, CO, ammonia emission rates, and fuel gas sulfur content shall be conducted at least once every twelve months. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

29. The following test methods shall be used PM10: EPA Method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703, 6.4] Federally Enforceable Through Title V Permit

30. The owner or operator shall provide source test information annually regarding the exhaust gas NOx and CO concentration corrected to 15% O2 (dry). EPA Methods 7E or 20 shall be used for NOx emissions. EPA Methods 10 or 10B shall be used for CO emissions. EPA Methods 3, 3A, or 20 shall be used for Oxygen content of the exhaust gas. [40 CFR 60.8(a), 40 CFR 60.335(a) and District Rule 4703, 5.1, 6.3.1, 6.4.1, 6.4.2, and 6.4.3] Federally Enforceable Through Title V Permit

31. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit

32. Results of the CEM system shall be averaged over a three hour period, using consecutive 15-minute sampling periods in accordance with either EPA Method 7E or EPA Method 20 for NOx, EPA Test Methods 10 or 10B for CO, or EPA Methods 3, 3A, or 20 for O2, or, if continuous emission monitors are used, all applicable requirements of CFR 60.13. [40 CFR 60.13 and District Rule 4703, 5.1, 6.4] Federally Enforceable Through Title V Permit

33. The owner or operator shall not operate the gas turbine under load conditions, except as allowed by the transitional operation period, which results in the measured CO emissions concentration exceeding 200 ppmv @ 15% O2. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit

34. The HHV and LHV of the fuel combusted shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.332(a) and (b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit

35. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080] Federally Enforceable Through Title V Permit

36. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit

37. Operators of CEM systems installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

38. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080] Federally Enforceable Through Title V Permit

39. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080] Federally Enforceable Through Title V Permit

40. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080] Federally Enforceable Through Title V Permit

41. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

42. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), and emission measurements. [40 CFR 60.8(d) and District Rule 1080, 7.0] Federally Enforceable Through Title V Permit

43. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [District Rule 2201] Federally Enforceable Through Title V Permit

44. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, type and quantity of fuel used. [District Rule 4703, 6.2.6] Federally Enforceable Through Title V Permit

45. The operator performing start-up or shutdown of this unit shall keep records of the duration of start-up or shutdown. [District Rule 4703, 6.2.8] Federally Enforceable Through Title V Permit

46. The operator of this unit shall keep records of the date, time and duration of each bypass transition period and each primary re-ignition period. [District Rule 4703, 6.2.11] Federally Enforceable Through Title V Permit

47. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirement: Kings County Rule 407 as of the date of permit issuance. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

48. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.7(b), 60.8, 60.8(d), 60.13, and 60.13(b); District Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

JUN 27 2012

Mark Kehoe
GWF Energy LLC
4300 Railroad Ave
Pittsburg, CA 94565-6006

Re: Administrative Amendment to Title V Operating Permit
District Facility # C-4140
Project # C-1121763

Dear Mr. Kehoe:

In accordance with District Rule 2520, Federally Mandated Operating Permits, the District has administratively amended the Title V operating permit for this facility to transfer ownership of one 724 horsepower diesel-fired emergency standby engine from Hanford LP (C-603-6) to GWF Energy LLC (C-4140-4). No other changes to the permit terms or conditions were made. The amended permit is attached. This amendment is being sent to you as a final action.

Your cooperation in this matter was appreciated. Should you have any questions, please contact Mr. Jim Swaney at (559) 230-5900.

Sincerely,

David Warner
Director of Permit Services

DW:jka

cc: Gerardo Rios, EPA Region IX (with Amended Permit)

Attachments

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061
www.valleyair.org

Southern Region
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
Tel: (661) 326-6900 FAX: (661) 326-6985

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-4140-4-0 **EXPIRATION DATE:** 04/30/2016

EQUIPMENT DESCRIPTION:
724 HP CATERPILLAR MODEL 3412 DIESEL-FIRED EMERGENCY IC ENGINE POWERING 475 KW ELECTRICAL GENERATOR

PERMIT UNIT REQUIREMENTS

1. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702, 5.7.2] Federally Enforceable Through Title V Permit
2. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rules 2201 and 4702, 5.7.4] Federally Enforceable Through Title V Permit
3. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Kings County Rule 407] Federally Enforceable Through Title V Permit
4. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [40 CFR Part 60 Subpart IIII and District Rules 2201 and 4801] Federally Enforceable Through Title V Permit
5. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 20 hours per calendar year. [District Rule 4702, 3.15] Federally Enforceable Through Title V Permit
6. During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702, 5.7.3] Federally Enforceable Through Title V Permit
7. An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702, 3.15] Federally Enforceable Through Title V Permit
8. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702, 3.15] Federally Enforceable Through Title V Permit
9. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Kings County Rule 407. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
10. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rules 2520, 9.4.2 and 4702, 6.2.3] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

11. The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702, 6.2.3] Federally Enforceable Through Title V Permit
12. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702, 6.2.3] Federally Enforceable Through Title V Permit

Appendix B: Certifications

AETB Certification
ARB Certification

Certificate of Accreditation

Stack **T**esting **A**ccreditation **C**ouncil

500 W. Wood Street • Palatine, IL • 60067

www.betterdata.org

stacmanager@betterdata.org

This is to certify that

TRC Environmental Corporation

650 Suffolk Street, Lowell, MA 01854

has been assessed and meets the requirements for interim accreditation under

ASTM D7036-04 and ASTM D7036-04 (Reapproved 2011)

Certificate Number: 2011.004.0000.0614

Certificate Expiration Date: 31 December 2014

Authorized Signature: _____ Date: 15 April 2014

This certificate is the property of STAC and must be surrendered immediately upon request.

This is to Certify that:

Michael Miller

Is a Qualified Individual as defined in Section 8.3 of ASTM D7036-04 for the following test methods:

ASTM D6348-10

The individual has met the minimum experience requirements defined in Section 8.3.4.2 of ASTM D7036-04 and has successfully passed an internal comprehensive examination for the test methods designated above.

This certification is effective until: **11-11-2019**

Date of Issue: 11-12-2014

Certificate Number: 00723

Edward J MacKinnon

Air Measurements Practice Quality Manager

TRC

This is to Certify that:

Michael J. Miller

Is a Qualified Individual as defined in Section 8.3 of ASTM D7036-04 for the following test methods:

EPA Methods 1, 2, 3, 4, 12, 19, 29, 30B, 101, 101A, 102, and ASTM D6784-02.

The individual has met the minimum experience requirements defined in Section 8.3.4.2 of ASTM D7036-04 and has successfully passed a comprehensive examination for the test methods designated above.

This certification is effective until: **12-20-2015**

Date of Issue: 12-05-2013

Certificate Number: 00645

Edward J MacKinnon

Air Measurements Practice Quality Director

TRC

This is to Certify that:

Michael J. Miller

Is a Qualified Individual as defined in Section 8.3 of ASTM D7036-04 for the following test methods:

EPA Methods 3A, 6C, 7E, 10, 10B, 19, 20, 25A.

CEM Performance Specifications PS2, PS3, PS4, PS4A, PS5, PS6, PS7, PS8, and PS15

The individual has met the minimum experience requirements defined in Section 8.3.4.2 of ASTM D7036-04 and has successfully passed a comprehensive examination for the test methods designated above.

This certification is effective until: **12-16-2018**

Date of Issue: 12-24-2013

Certificate Number: 00652

Edward J MacKinnon

Air Measurements Practice Quality Director

TRC

This is to Certify that:

Michael J. Miller

Is a Qualified Individual as defined in Section 8.3 of ASTM D7036-04 for the following test methods:

EPA Methods 1, 2, 3, 4, 3B, 6, 6A, 6B, 7, 7C, 7D, 8, 11, 13A, 13B, 15A, 16A, 19, 26, 26A, and 202.

The individual has met the minimum experience requirements defined in Section 8.3.4.2 of ASTM D7036-04 and has successfully passed a comprehensive examination for the test methods designated above.

This certification is effective until: **12-20-2015**

Date of Issue: 12-05-2013

Certificate Number: 00643

Edward J MacKinnon

Air Measurements Practice Quality Director

TRC

This is to Certify that:

Michael J. Miller

Is a Qualified Individual as defined in Section 8.3 of ASTM D7036-04 for the following test methods:

EPA Methods 1, 1A, 2, 2A, 2C, 2D, 2F, 2G, 2H, 3, 3B, 4, 5, 5A, 5B, 5E, 5F, 5i, 17, 19, 201A, and 202.

The individual has met the minimum experience requirements defined in Section 8.3.4.2 of ASTM D7036-04 and has successfully passed a comprehensive examination for the test methods designated above.

This certification is effective until: **12-16-2018**

Date of Issue: 12-24-2013

Certificate Number: 00651

Edward J MacKinnon

Air Measurements Practice Quality Director

TRC

This is to Certify that:

Michael Miller

Is a Qualified Individual as defined in Section 8.3 of ASTM D7036-04 for the following test methods:

EPA Method 18

The individual has met the minimum experience requirements defined in Section 8.3.4.2 of ASTM D7036-04 and has successfully passed an internal comprehensive examination for the test methods designated above.

This certification is effective until: **08-29-2019**

Date of Issue: 09-02-2014

Certificate Number: 00705

Edward J MacKinnon

Air Measurements Practice Quality Manager

TRC

This is to Certify that:

Michael Miller

Is a Qualified Individual as defined in Section 8.3 of ASTM D7036-04 for the following test methods:

BAAQMD Method ST-1B

The individual has met the minimum experience requirements defined in Section 8.3.4.2 of ASTM D7036-04 and has successfully passed an internal comprehensive examination for the test methods designated above.

This certification is effective until: **08-29-2019**

Date of Issue: 09-02-2014

Certificate Number: 00704

Edward J MacKinnon

Air Measurements Practice Quality Manager

TRC

State of California

Air Resources Board

Approved Independent Contractor

TRC Environmental Corporation

This is to certify that the company listed above has been approved by the Air Resources Board to conduct compliance testing pursuant to California Code of Regulations, Title 17, Section 91207, until June 30, 2015, for those test methods listed below:

ARB Source Test Methods:
1, 2, 2A, 3, 4, 5, 6, 8, 11, 16A (Tutwiler), 20
100 (CO, CO_2, NO_x, O_2, SO_2, THC), 501

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER I-13-029

Relating to Independent Contractor Approval under
California Code of Regulations, Title 17, Section 91207

TRC Environmental Corporation

WHEREAS, the Air Resources Board (ARB), pursuant to California Health and Safety Code, section 41512, has established the procedures contained in California Code of Regulations, title 17, section 91200 and following, to allow the use of independent testers for compliance tests required by ARB;

WHEREAS, it has been determined that TRC Environmental Corporation meets the requirements of ARB for performing ARB Test Methods 1, 2, 2A, 3, 4, 5, 6, 8, 11, 16A (Tutwiler), 20, 100 (CO, CO_2, NO_x, O_2, SO_2, THC), 501, United States Environmental Protection Agency (U.S. EPA) Test Methods 18, and 19 (determining the emission rate of NO_x, on an hourly basis, if the appropriate F factors can be determined from Table 19-2 of the method) pursuant to Cal. Code Regs., title 17, section 91200 and following, when the following conditions are met:

1. TRC Environmental Corporation permanently marks or engraves an identification number on the body of each of its pitot tubes in accordance with section 2.1 of ARB Test Method 2;

2. TRC Environmental Corporation calibrates its differential pressure gauges after each test series in accordance with section 2.2 of ARB Test Method 2 and establishes and maintains a log of the calibrations;

3. TRC Environmental Corporation measures barometric pressure in accordance with section 2.5 of ARB Test Method 2. TRC Environmental Corporation calibrates its barometers in accordance with section 4.4 of ARB Test Method 2 and establishes and maintains a log of the calibrations;

4. TRC Environmental Corporation calibrates its dry gas meters in accordance with section 5.3 of ARB Test Method 5 and establishes and maintains a log of the calibrations;

5. TRC Environmental Corporation calibrates its metering system in accordance with section 5.3 of ARB Test Method 5 and establishes and maintains a log of the calibrations;

6. TRC Environmental Corporation acquires and uses ASTM E617 Class 1 weights for calibrating its balances and establishes and maintains a log of the calibrations;

7. TRC Environmental Corporation checks its Thorin indicator solution against a known concentration before using the Thorin indicator. If TRC Environmental Corporation conducts the titration away from its facility, it must check the Thorin indicator solution before the Thorin indicator leaves its facility and before use in the field;

8. TRC Environmental Corporation installs and uses a needle valve, or equivalent, in accordance with section 5.1.6 of ARB Test Method 11;

9. TRC Environmental Corporation installs and uses a small surge tank between the pump and rate meter in accordance with section 5.1.14 of ARB Test Method 11;

10. TRC Environmental Corporation uses a 40 percent H_2/60 percent He or a 40 percent H_2/60 percent N_2 blend, as appropriate, as fuel for its hydrocarbon analyzer;

11. TRC Environmental Corporation uses noncalculating channels on its data acquisition system. The data acquisition system or a strip chart must meet the requirements of section 2.2.8 of ARB Test Method 100;

12. TRC Environmental Corporation includes the following information on all strip charts and/or emissions data sheets: pollutant of interest, source, analyzer range, date and time, zero offsets, and the name of the person operating the instruments;

13. TRC Environmental Corporation acquires and uses a preweighed aluminum evaporation dish in accordance with section 2.2.2 of ARB Test Method 501;

14. TRC Environmental Corporation participates in the United States Environmental Protection Agency Stationary Source Compliance Audit Program for approved methods;

15. TRC Environmental Corporation establishes and maintains calibration and laboratory log books. These books must contain, at a minimum, calibration data on its balances, nozzles, thermometers, and meter boxes. TRC Environmental Corporation must also log information on the weight check, zero check, tare, balance room temperature, and relative humidity data; and

WHEREAS, ARB Executive Officer, pursuant to California Health and Safety Code section 39516, issued Executive Order G-02-008, delegating to the Chief of ARB Monitoring and Laboratory Division (MLD) the authority to approve independent testers in accordance with Cal. Code Regs., title 17, section 91200 and following.

NOW, THEREFORE, I, Michael T. Benjamin, Chief of MLD, order that TRC Environmental Corporation is granted approval from the date of execution of this order until June 30, 2014, to perform the test methods identified above subject to compliance with Cal. Code Regs., title 17, section 91200 and following.

BE IT FURTHER ORDERED that during the approved period the Executive Officer or his authorized representative may field audit one or more tests performed pursuant to this order for each test method identified above.

Executed at Sacramento, California, this 12th day of July 2013.

for

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division

State of California

Air Resources Board

Approved Independent Contractor

TRC Environmental Corporation

This is to certify that the company listed above has been approved by the Air Resources Board to conduct compliance testing pursuant to California Code of Regulations, title 17, section 91207, until June 30, 2014, for those test methods listed below:

ARB Source Test Methods:
1, 2, 2A, 3, 4, 5, 6, 8, 11, 16A (Tutwiler), 20
100 (CO, CO_2, NO_x, O_2, SO_2, THC), 501

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division

State of California

Air Resources Board

Approved Independent Contractor

TRC Environmental Corporation

This is to certify that the company listed above has been approved by the Air Resources Board to conduct compliance testing pursuant to California Code of Regulations, title 17, section 91207, until June 30, 2014, for those test methods listed below:

U.S. EPA Test Methods 18 and 19 (determining the emission rate of NO_x, on an hourly basis, if the appropriate F factors can be determined from Table 19-2 of the method)

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division

State of California

Air Resources Board

Approved Independent Contractor

TRC Environmental Corporation

This is to certify that the company listed above has been approved by the Air Resources Board to conduct compliance testing pursuant to California Code of Regulations, Title 17, Section 91207, until June 30, 2015, for those test methods listed below:

U.S. EPA Test Methods 18 and 19 (determining the emission rate of NO_x, on an hourly basis, if the appropriate F factors can be determined from Table 19-2 of the method)

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division

State of California

Air Resources Board

Approved Independent Contractor

TRC Environmental Corporation

This is to certify that the company listed above has been approved by the Air Resources Board to conduct compliance testing pursuant to California Code of Regulations, Title 17, Section 91207, until June 30, 2015, for the test method listed below:

Visible Emissions Evaluation

Dr. Michael T. Benjamin, Chief
Monitoring and Laboratory Division